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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,355	09/05/2003	Elizabeth Matheson	MS1-1578US	7829

22971 7590 06/01/2007
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EXAMINER	
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ART UNIT	**PAPER NUMBER**
2109	

NOTIFICATION DATE	DELIVERY MODE
06/01/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/656,355	MATHESON ET AL.	
	Examiner	Art Unit	
	Caroline Arcos	2109	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09/05/03*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09/05/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/06/2004, 12/22/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-30 are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 15 recites the limitation of "processor readable medium" which is insufficient antecedent basis for this limitation in the Claim.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 15-17 is rejected under 35 U.S.C 101 can be any media including radio-link or wave which are not statutory.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims1-30 are rejected under 35 U.S.C. 102(b) as being unpatentable over Walker et al US 5,963,911)

Per claim1:

-A method comprising: receiving a plurality of task containers representing a plurality of

tasks, where each task container is a grouping of either task containers or resource containers which describe one or more resources required for the represented task; (Column 1, lines 58-59 "a method of allocating a plurality of resources to a plurality of jobs"), where plurality of "resources" are" resource containers" that are allocated to a "plurality of jobs" as claimed.

-generating a cost for each task based on probabilities that the task will influence each other task in the plurality of tasks using the containers; and (Column 7, lines 18-24 "It should be recognized that these costs are estimates and include a weighting for probability: in other words, they are actuarial costs. In many cases, the cost of allocating the job can in reality only be one of two values, zero or the failure cost. The actuarial or weighted cost lies between these values, its precise value depending on the probability of failure."), and (Column 2, lines 52-54 "means for assigning to each job a cost function which is calculated as a function of the time at which the job will be performed")

-scheduling the task with the least cost. (Column. 2, lines 8-12 "when a resource becomes available the steps described above are performed, the available resource then being assigned to the job which is associated with it in the smallest cost combination."), wherein assigning jobs to resources with reduce cost is scheduling tasks with the least cost as claimed.

Per claim 2:

Claim 1 is incorporated and further Walker et al Discloses:

- the resources information comprises container information describing how to select the one or more tasks or resources. (Column4, lines 37-41 "means for determining from the parameters the time at which each resource is forecast to become available, means for

determining from the parameters the time at which each job is required to be performed;"), wherein each task and resources selection is dependant on availability of both task and resources and time constraints.

Per claim 3:

Claim 2 is incorporated and further Walker et al Discloses:

- the container information comprises at least one of: an "AND" relationship indicating that all of the one or more tasks or resources are required; an "XOR" relationship indicating that only one of the one or more tasks or resources is required; and an "OR" relationship indicating that one or more of the one or more tasks or resources are required. (Column 2, lines 38-41 "A group of jobs which are closely related may be represented by a single job in the calculation of cost scores, other jobs of the group being assigned to the same resource if they are compatible."), Where Group the tasks that are compatible in the request of specific resource in a single job is an "AND" relationship. In view of Walker et al, it is inherent that an "and", an "XOR" and an "OR" functions are used in allocating required resources to jobs.

Per claim 4:

Claim 1 is incorporated and further Walker et Al Discloses:

- receiving a timeslot definition associated with each of the plurality of tasks or resources, the timeslot definition defining a required timeslot for the associated task or resource. (Column 1, lines 61-64 "means for determining from the parameters the time at which each resource is forecast to become available; means for determining from the parameters the time at which each job is required to be performed;"), and (Column1, lines 65-67 "assigning to each job

a time-dependent cost function calculated as a function of the time at which the job will be performed;")

Per claim 5:

Claim 4 is incorporated and further Walker et al Discloses:

- the timeslot definition comprises an early start indicator, a late finish indicator, and a duration indicator. (Column 2, lines 50-54 "means for determining from the parameters the time at which each job is required to be performed; means for assigning to each job a cost function which is calculated as a function of the time at which the job will be performed"), where the time at which the job is required is the start time indicator and the cost function is the duration time indicator as claimed. The finish time is inherited since it can be calculated from the start and the duration time indicator.

Per claim 6:

Claim 1 is incorporated and further Walker et al Discloses:

- a constraint describing a time constraint between two tasks in the plurality of tasks; and scheduling the two tasks based on the constraint. (Column 2, lines 1-5 "for each possible combination of jobs with resources, determining the total projected cost, dependent on the time at which each resource is forecast to be available and the value of the cost function for the respective job at that time"), and (abstract "In order to optimize the utilization of resources in performing a number of jobs, each job is assigned a cost time-dependent function and each resource is assessed for the time at which it will be available."), where the cost time –dependent function is a time constraint for each task and the total projected cost is the time constraint between a combination of tasks.

Per claim 7:

Claim 1 is incorporated and further Walker et al Discloses:

- determining a probability that a first task in the plurality of tasks influences a second task in the plurality of tasks based on the resource information; (Column18, lines 14-19 " These revisions will be predominantly in the estimates of job completion time for those jobs whose earliest estimated completion times have been exceeded. As discussed above, these estimated times include a variability represented by a `predicted time band`. If the `time now` has passed the beginning of this `predicted time band` the probability of completion in the earlier incremental periods of the time band obviously falls to zero, with a consequent rise in the probability of completion falling within any given increment in the remaining part")

-adjusting the cost of the first tasks based on a function of the probability that the first task in the plurality of tasks influences the second task in the plurality of tasks. (Column 14, lines 37-38 "The cost of job failure is then calculated for each job the technician can do (step 53).

Per claim 8:

Claim 1 is incorporated and further Walker et al Discloses:

- determining a probability that a first task in the plurality of tasks supports a second task in the plurality of tasks based on the resource information; and if the first task supports the second task, reducing the cost of the first task based on a function of the probability that the first task supports the second task. (Column18, lines 14-19 " These revisions will be predominantly in the estimates of job completion time for those jobs whose earliest estimated completion times have been exceeded. As discussed above, these estimated times include a

variability represented by a `predicted time band`. If the `time now` has passed the beginning of this `predicted time band` the probability of completion in the earlier incremental periods of the time band obviously falls to zero, with a consequent rise in the probability of completion falling within any given increment in the remaining part"), and (Column 2, line 38-41 "A group of jobs which are closely related may be represented by a single job in the calculation of cost scores, other jobs of the group being assigned to the same resource if they are compatible."), wherein jobs that are related are jobs that support each other as claimed and by grouping them, it is inherent that the cost function will be reduced.

Per claim 9:

Claim 1 is incorporated and further Walker et al Discloses:

-determining a probability that a first task in the plurality of tasks competes with a second task in the plurality of tasks based on the resource information; and if the first task competes with the second task, increasing the cost of the first task based on a function of the probability that the first task competes with the second task. (Column18, lines 14-19 " These revisions will be predominantly in the estimates of job completion time for those jobs whose earliest estimated completion times have been exceeded. As discussed above, these estimated times include a variability represented by a `predicted time band`. If the `time now` has passed the beginning of this `predicted time band` the probability of completion in the earlier incremental periods of the time band obviously falls to zero, with a consequent rise in the probability of completion falling within any given increment in the remaining part"), and (Column 2, lines 20-23 "The method may be arranged such that combinations of resources and jobs which are incompatible are ascribed substantially infinite cost values.") Where compatibility

of jobs is jobs that are competing with each other as claimed, and infinite cost values is increasing the cost as claimed.

Per claim 10:

Claim 1 is incorporated and further Walker et al Discloses:

-The generating comprises: selecting a first task from among the plurality of task; (Column 3, lines 29-31 "Means may also be provided for prioritizing jobs and/or resources, and for selecting the jobs and resources with the highest priority on which to perform the cost evaluation.") Where prioritizing tasks is a way of selecting a job from a plurality of tasks are claimed.

-For each of the other tasks in the plurality of tasks, determining a pair-wise probability, the pair-wise probability representing a probability that the first task will compete with the other task; (Column 2, lines 20-26 "combinations of resources and jobs which are incompatible are ascribed substantially infinite cost values. If it is desired to allocate a specific resource to a job, it may be arranged that combinations of that job with other resources are treated as incompatible.") Where, pair-wise probability is tasks competing with each other, incompatibility of jobs and resources are jobs that compete for resources as claimed.

-Summing the pair-wise probabilities to form a total cost associated with the first task. (abstract "The combination giving the lowest overall cost is then determined."), and (Column 2, lines 2-5 "determining the total projected cost, dependent on the time at which each resource is forecast to be available and the value of the cost function for the respective job at that time")

Per claim 11:

Claim 1 is incorporated and further Walker et al Discloses:

A method as recited in claim 1 wherein the resource information comprises preference information describing preferences of the one or more resources. (Column 16, line 35-38 "Certain jobs which are difficult to allocate may be given increased weightings to ensure that they are considered earlier than they might otherwise have been."), where weightings is the preference as claimed.

Per claim 12:

Claim 1 is incorporated and further Walker et al Discloses:

-A method as recited in claim 1 wherein the generating comprises applying preference values to the tasks. . (Column 16, lines 35-38 "Certain jobs which are difficult to allocate may be given increased weightings to ensure that they are considered earlier than they might otherwise have been."), and (Column 16, line 342-43 "On the basis of these values the priority of the job is determined")

Per claim 13:

Claim 1 is incorporated and further Walker et al Discloses:

A method as recited in claim 1 wherein the generating comprises tabulating a cost associated with each pair of tasks. In Figs. 16 and 17 represent cost score matrixes, which is tabulating cost. ("Initially a square matrix (in the example below a 4x4 matrix) is prepared giving the various cost scores for allocating each resource to each job in the matrix. Each row and each column may be given an attribute referred to as a `label`. This label identifies whether a row or column has been inspected for selection of an element in the optimum assignment, and whether such a selection has been made.") where cost is each task cost, cost associated with each pair of task is inherited.

Per claim 14:

Claim 1 is incorporated and further Walker et al Discloses:

-A method as recited in claim 1 further comprising: removing the scheduled task from a main task log; adjusting probabilities associated with resources remaining in the main task log based on the scheduled task (Column 16, lines 24-27 "The job or jobs allocated to the technician are removed from the list of jobs awaiting assignment (Step 66) and the technician's own details (location, estimated job completion time) are updated. (Step 67)") (Column 14, lines 61-64 "When a job is allocated to a technician, only those of the associated job, which are compatible with him, are also allocated to him. They are also removed from the matrix if they are present within it. In this way, grouping of jobs can be achieved in a flexible manner.") where job is a task and technician is the resource. Once the task gets scheduled by assigning the resource to it, it is removed from the matrix, which is the main task log as claimed.

-re-generating a cost for each task based on probabilities that the task will influence each other task in the plurality of tasks using the resource containers(Column18, lines 14-19 " These revisions will be predominantly in the estimates of job completion time for those jobs whose earliest estimated completion times have been exceeded. As discussed above, these estimated times include a variability represented by a `predicted time band`. If the `time now` has passed the beginning of this `predicted time band` the probability of completion in the earlier incremental periods of the time band obviously falls to zero, with a consequent rise in the probability of completion falling within any given increment in the remaining part"), and (Column 14, lines 37-38 "The cost of job failure is then calculated for each job the technician can do (step 53).")

Claim 15

-A processor-readable medium having processor-executable instructions. Fig. 19 describes a memory"194" which is a storage medium connected to central processing unit (CPU) 192, a visual display unit (VDU) 193, and an input/output port 195.Memory "194" is a processor readable medium that contain a program as claimed.

-for performing a method comprising receiving a plurality of first resource descriptors describing first resources associated with a first candidate task and selection criteria defining how the first resources are to be selected from the plurality of first resources; receiving a second resource descriptor describing a resource associated with a second candidate task (Column 5, lines 58-62 "the resources take the form of three technicians T1, T2, T3 who are provided, respectively, with the terminals H1, H2, H3. The three technicians are presently engaged on jobs J1, J2, J3 and there are four further jobs J4, J5, J6, J7 awaiting attention."), (Column 2, lines 15-19 " If a second resource becomes available at or near to its forecast time and no other changes have occurred since the optimization determination was last performed, the second resource may be assigned the job already allocated to it in the lowest-cost combination previously calculated. ").

-scheduling one or more of the first candidate task and the second candidate task, wherein one or more of the first resources are allocated to the first candidate task in accordance with the selection criteria. (Column 7, lines 43-44 "Technician T1 may be allocated job J5, technician T2 job J7 and technician T3 job J6, job J4 not being allocated at this stage."), and (Column 7, lines 32-34 "The method then determines the combination of the technicians and jobs for which the total of the "technician/job cost" values is a minimum.") where T1, 2 and 3

are different resources and J5, 6 and 4 are tasks.

Claim16

Claim 15 is incorporated and further Walker et al Discloses:

- the scheduling comprising identifying one or more of the first resources that are not the same as the second resource and that satisfy the selection criteria. (Column 5, lines 58-63 "the resources take the form of three technicians T1, T2, T3 who are provided, respectively, with the terminals H1, H2, H3. The three technicians are presently engaged on jobs J1, J2, J3 and there are four further jobs J4, J5, J6, J7 awaiting attention. In a real situation there will be many more technicians and jobs.") Wherein T1 and T2 are two different resources that are not the same as claimed

Claim 17

Claim 15 is incorporated and further Walker et al Discloses:

-receiving a current schedule state having currently scheduled tasks and currently scheduled resources;(Column 16, lines 24-27 "The job or jobs allocated to the technician are removed from the list of jobs awaiting assignment (Step 66) and the technician's own details (location, estimated job completion time) are updated. (Step 67)") All tasks that is not present in the matrix are already scheduled. Fig.3 shows routine 5, which updates resource status and check the availability of the resource. Any non-available resource is scheduled.

-determining whether the first candidate task and the second candidate task are viable based on the current schedule state; and (Column 3, lines 37-41 "Advantageously, these terminals may store details of a second job provisionally allocated to the resource by the allocation equipment, but only reveal these details if an attempt to report completion of a first job

fails to communicate with the allocation apparatus.") , and (Column 14, lines 37-38 "The cost of job failure is then calculated for each job the technician can do (step 53).

-eliminating one or more of the first or second candidate task from consideration if the one or more of the first or second candidate task is not viable. (Column 12, lines 44-51 "The very high cost-score referred to should be less than the substantially infinite value used for incompatible allocations of jobs to technicians, because an infinite value could result in a situation where the matrix is insoluble (because no real technician can do it either). In such a case the job would be counted as a failure and removed from the system, which would prevent a suitable real technician who completes his previous job ahead of time being given it. ")

Claim18.

-A system for scheduling a plurality of tasks, the system comprising: a task log including a plurality of task objects representing tasks, the task objects having resource objects representing a resource required for the associated task (Column 5, lines 58-62 "the resources take the form of three technicians T1, T2, T3 who are provided, respectively, with the terminals H1, H2, H3. The three technicians are presently engaged on jobs J1, J2, J3 and there are four further jobs J4, J5, J6, J7 awaiting attention.")

-each of the task objects operable to return a probability that scheduling of the task will influence another task; a cost generator operable to generate a cost for each of the tasks based on probabilities that the task will influence each other task (Column 2, lines 52-54 "means for assigning to each job a cost function which is calculated as a function of the time at which the job will be performed"), and (Column18, lines 14-19 " These revisions will be

predominantly in the estimates of job completion time for those jobs whose earliest estimated completion times have been exceeded. As discussed above, these estimated times include a variability represented by a `predicted time band`. If the `time now` has passed the beginning of this `predicted time band` the probability of completion in the earlier incremental periods of the time band obviously falls to zero, with a consequent rise in the probability of completion falling within any given increment in the remaining part")

-a scheduling engine operable to schedule the task with the least cost. (Column. 2, lines 8-12 "when a resource becomes available the steps described above are performed, the available resource then being assigned to the job which is associated with it in the smallest cost combination."), wherein assigning jobs to resources with reduce cost is scheduling tasks with the least cost as claimed.

Claim19

Claim 18 is incorporated and further Walker et al Discloses:

-the task log further comprises a resource container defining a function of a plurality of resources. (Column 5, lines 58-60 "the resources take the form of three technicians T1, T2, T3 who are provided, respectively, with the terminals H1, H2, H3.") Wherein T1,2 and 3 are plurality of resources.

Claim20

Claim 19 is incorporated. Claim 20 is the system claim corresponding to the method claim 3 and is rejected under the same reason set forth in connection of the rejection of claim 3.

Claim 21

Claim 18 is incorporated and further Walker et al Discloses:

- the cost generator is further operable to calculate pair-wise costs representing a cost of scheduling a first task relative to a second task. (Column 2, lines 20-26 "combinations of resources and jobs which are incompatible are ascribed substantially infinite cost values. If it is desired to allocate a specific resource to a job, it may be arranged that combinations of that job with other resources are treated as incompatible.") Where, pair-wise probability is tasks competing with each other, incompatibility of jobs and resources are jobs that compete for resources as claimed.

Claim 22

Claim 18 is incorporated and further Walker et al Discloses:

-the cost generator is further operable to tabulate pair-wise costs representing a cost of scheduling a first task relative to a second task and generate a total cost associated with each of the tasks. (Column 2, lines 20-26 "combinations of resources and jobs which are incompatible are ascribed substantially infinite cost values. If it is desired to allocate a specific resource to a job, it may be arranged that combinations of that job with other resources are treated as incompatible."), and (Column 2, lines 52-54 "means for assigning to each job a cost function which is calculated as a function of the time at which the job will be performed")

Claim 23

Claim 18 is incorporated. Claim 23 is the system claim corresponding to the method claim 6 and is rejected under the same reason set forth in connection of the rejection of claim 6.

Claim 24

Claim 18 is incorporated and further Walker et al Discloses:

- the task log further comprises a hierarchical arrangement of the task objects and the

resource objects. . (Column 5, lines 58-63 "the resources take the form of three technicians T1, T2, T3 who are provided, respectively, with the terminals H1, H2, H3. The three technicians are presently engaged on jobs J1, J2, J3 and there are four further jobs J4, J5, J6, J7 awaiting attention. In a real situation there will be many more technicians and jobs."), and (Column 2, lines 26-29 "The jobs may be prioritized on the basis of the times at which they to be performed, and the resources may be prioritized on the basis of which are forecast to become available first.")Wherein the test log comprises list of resources which is T1,2 and 3 and list of tasks J1, 2 and 3, placed in hierarchical arrangement of their priority and availability.

Claim 25

Claim 18 is incorporated. Claim 25 is the system claim corresponding to the method claim 9 and is rejected under the same reason set forth in connection of the rejection of claim 9.

Claim 26

- A method comprising: generating a cost associated with each of a plurality of tasks to be scheduled; executing a minimum cost task; and scheduling the minimum cost task if the minimum cost task successfully executes. (Column 2, lines 52-54 "means for assigning to each job a cost function which is calculated as a function of the time at which the job will be performed")

Claim 27

Claim 26 is incorporated and further Walker et al Discloses:

- the generating comprises determining a pair-wise probability representing a probability that a first task in the plurality of tasks conflicts with a second task in the plurality of tasks.

(Column18, lines 14-19 " These revisions will be predominantly in the estimates of job completion time for those jobs whose earliest estimated completion times have been exceeded. As discussed above, these estimated times include a variability represented by a `predicted time band`. If the `time now` has passed the beginning of this `predicted time band` the probability of completion in the earlier incremental periods of the time band obviously falls to zero, with a consequent rise in the probability of completion falling within any given increment in the remaining part"), and (Column 2, lines 20-26 "combinations of resources and jobs which are incompatible are ascribed substantially infinite cost values. If it is desired to allocate a specific resource to a job, it may be arranged that combinations of that job with other resources are treated as incompatible."),

Claim **28**

Claim 26 is incorporated and further Walker et al Discloses:

-adjusting the pair-wise probability in response to scheduling the minimum cost task.

(Column 21, lines 61-67 "The costs determined in calculation means 188 and adjustment means 1810 are then assessed in allocation means 1811 to determine the optimum combination of jobs with technicians. This optimum combination is communicated to the technician though device and the allocation means 1811 also sends updating information to stores 181 and 183."), and (Column. 2, lines 8-12 "when a resource becomes available the steps described above are performed, the available resource then being assigned to the job which is associated with it in the smallest cost combination."),

Claim 29

Claim 26 is incorporated. Claim 29 is the system claim corresponding to the method claim 12

and is rejected under the same reason set forth in connection of the rejection of claim 12.

Claim 30

Claim 26 is incorporated and further Walker et al Discloses:

-determining viability of each task in the plurality of tasks. (Column 14, lines 37-38 "The cost of job failure is then calculated for each job the technician can do (step 53)") Wherein by determining the cost of each job to fails, gives an idea of the viability of the job as claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caroline Arcos whose telephone number is 571-270-3160. The examiner can normally be reached on 7:30 AM- 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chameli Das can be reached on 571-272-3696. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO

Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Caroline Arcos

Patent examiner

Chameli C Das

CHAMELI DAS
SUPERVISORY PATENT EXAMINER

5/25/07.